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Joseph J. Laks			EXAMINER	
Thomson Licensing LLC			RASHID, DAVID	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/806,734

Applicant(s)

LOEW, ANDREAS

Examiner

DAVID P. RASHID

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 September 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Amendments

[1] This office action is responsive to the Response Under 37 C.F.R. 1.111 received on September 5, 2008. Claims 15-20 remain pending.

Response to Arguments

[2] Remarks/Arguments filed September 5, 2008 with respect to **claims 15-17-20** have been respectfully and fully considered, but not found persuasive.

Summary of Remarks

The difference in the two output images results from the teaching in the Scott et al. patent of always making use of the first three pixels of each line of the input image for determining the respective first pixel of each line of the output image. In contrast, the method of the present principles makes uses of offset support points for two successive lines. The offset support points result in the groups of two successive lines being formed from pixels at least partly being located in different columns. As a result, the bold white vertical line at the left border is completely removed by the method of Scott et al., while the method of the present application preserves some detail of the bold white vertical line in every other line of the output image.

The alleged offset disclosed in Scott et al. is a mere result of the distribution scheme, which produces output values selected from groups of two or three pixels. However, this distribution scheme is the same for each line, and there is no offset in the distribution of the support points between two successive lines as recited in applicant's claims.

In summary, the Scott et al. patent does not teach all of the features of applicant's claim 15, especially the feature of:

distributing the support points of two successive lines or columns of the input video image such that the support points of one line or column of the input image have an offset with respect to a preceding or succeeding line or column of the input video image, for improving reproduction of fine details in the output video image

Applicant's Remarks/Arguments at 7, September 5, 2008.

Examiner's Response

However, a most applicable definition of "offset" is a "displacement c: an abrupt change in the dimension or profile of an object or the part set off by such change". See Merrian-Webster Online, 2007-2008, "offset" n. def. 3c, available at <http://www.m-w.com/dictionary>.

The distribution of support points between two successive lines such that the support points of one line have an “offset” with respect to the other lines is anticipated by *Scott et al.* at fig. 4a. Support points are those pixels chosen within set blocks in the input image item 410 (e.g., choosing support point 411_1 within block 411). With respect to columns, suppose the first pixel within each block is chosen (e.g., choosing support points 411_1 , 415_1 , 421_1 , and 425_1). Two possible “offsets” are given,

(1) memory read “offset” in time in that proceeding support point pixel 411_1 is read from memory (an offset of time = 0) before succeeding support point pixel from 415_1 (a succeeding column) is read from memory (an offset of time = 4); or

(2) distance “offset” in distance in that proceeding support point pixel 411_1 is 0 pixels away from the corner of the image (an offset of 0 pixels) and succeeding support point pixel 415_1 (a succeeding column) is four pixels away from the corner of the image (an offset of 4 pixels)

There does exist offsets in the sense of above with respect of support points of one column with respect to the other column. Applicant’s interpretation of offset may be as follows:

(3) distance “offset” in distance in that proceeding support point pixel 411_1 is e.g. 2 pixels away from the same corresponding support point pixel of another column (e.g., support point 411_1 is shifted over one pixel in the next row which would be 433_3 and not 433_1).

There does exist offsets in the sense of Examiner’s interpretation with respect of support points of one column with respect to the other column. Applicant’s offset is one type of such offset of various others, it is suggested to further limit with respect to offset.

[3] Remarks/Arguments filed September 5, 2008 with respect to **claim 16** has been respectfully and fully considered, and found persuasive.

Summary of Remarks

The Jung published application relates to processing digital images comprising pixel blocks, in which digital images undesired blocking artifacts may be visible at block boundaries, and determining whether the block boundaries are visible or not visible, in order to make a decision for subsequent filtering (see abstract; paragraph 0013). Paragraph 0033 of Jung pertains to the decision threshold whether a border between two neighboring blocks is visible, and does not deal with selecting pixels based upon a maximum difference. In fact, Jung's intention is to remove the undesired blocking artifacts rather than enhancing the visibility of differences.

Jung absolutely fails to disclose selecting pixels in an input video image in such a way that two of the selected pixels that are adjacent in an output image have a maximum difference. Moreover, the person of ordinary skill in the art would find no motivation in Jung to select pixels in such a way that they have a maximum difference, or to combine Jung and Scott.

Remarks/Arguments at 8.

Examiner's Response

Applicant's arguments with respect to claim 16 have been fully considered and are persuasive. The rejection of *Scott et al.* in view of *Jung* has been withdrawn.

Claim Rejections - 35 U.S.C. § 101

[4] 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

[5] **Claims 15-20** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

A judicial exception claim is non-statutory for solely embodying an abstract idea, natural phenomenon, or law of nature. *See* M.P.E.P. § 2106(IV)(C)(2). However, a practical application of a judicial exception claim is a § 101 statutory claim "when it:

- (A) 'transforms' an article or physical object to a different state or thing [(i.e., a physical transformation, see below)]; or
- (B) otherwise produces a useful, concrete and tangible result, based on the factors

discussed below. . . .” *Id.*

An “article” is “a member of a class of things” which appears to need not be physical. See Merrian-Webster Online, 2007-2008, “article” n. def. 3, *available at* <http://www.m-w.com/dictionary>. Though an article may not be physical, § 101 statutory transformations of such intangible articles must be physical transformations (*i.e.*, a physical component to the transformation must be involved). See M.P.E.P. § 2106(IV)(C)(2) (requiring the element “provides a transformation or reduction of an article to a different state of thing”, a “practical application by physical transformation”) and Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility, Official Gazette notice, 22 November 2005, Annex (II)(B)(iii); (III).

A pixel is nothing more than a block of existing information as there is nothing tangible or physical about a pixel itself (*i.e.*, a pixel could be equivalent to the value “101”, or signal representation of an image). A pixel is more representative of an information value or signal (an image block more representative of an information matrix) than something tangible or physical.

Furthermore, a claim including a method-step for inputting or outputting a pixel or image, but not positively indicating physically where the pixel or image is sent does not indicate a physical transformation, nor a useful, concrete and tangible result. The claim would require further information as to indicate physical location (*e.g.*, memory, display) for a complete physical transformation of an image signal (*e.g.*, pixel, image block) article. “[O]utputting the selected or calculated pixel or subpixel value to produce the output video image that can be displayed” (emphasis added) is intended usage as the method-step is not an actual positive recitation of a physical transformation.

Claims 15-20 are non-statutory for being a judicial exception, an abstract idea.

Claim Rejections - 35 USC § 102

[6] The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(c) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

[7] **Claims 15 and 17-20** are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,097,518 (issued Mar. 17, 1992, hereinafter "Scott et al.").

Regarding **claim 15**, *Scott et al.* discloses a method ("ERROR DIFFUSION PIXEL SAVING REDUCTION SCALING" in fig. 4a) for arbitrarily selectable scaling of input video (11:34-36) images (fig. 4a, item 410) represented by pixels ("...the source image is broken into pixel groups..." in 14:9-10 wherein the image is a plurality of pixels as shown in fig. 4a) or subpixels arranged line by line ("...horizontally..." in 14:8-11; fig. 4a) and column by column ("...vertically..." in 14:8-11; fig. 4a), wherein the number of lines and columns in the output video images differ from the number of lines and columns of the input video images, the method comprising the steps of:

distributing a number of support points (support points being one specific individual pixel selected in each successive pixel blocks 411, 415, 421, 425 (e.g., support point being either 411₁,

411₂, or 411₃ in pixel block 411 using the OR gate 413), corresponding to a number of pixels (fig. 4a, items 441, 442, 443, ...) or subpixels in the output video (11:34-36) image (fig. 4a, item 440), across the lines or columns of the input image at integer pixel or subpixel distances having a minimum variation from one another (absolute minimum variation is preserved if every n-th individual pixel within each pixel block is selected (e.g. n=1 such that support points 411₁, 415₁, 421₁, 425₁,... are selected in each pixel block)), wherein the ratio of the number of support points to the number of pixels or subpixels in a line or column of the input image correspond to the desired scaling factor (An example given in 14:4-16 for the horizontal direction in fig. 4a wherein the desired down-scaling factor is 2.33. Selecting the support points above will preserve an absolute minimum variation such that the desired scaling factor from the sequence 3, 2, 2, 3,... is obtained. Each pixel block must end with the start of a new support point.); and

selecting (fig. 4a, items 413, 417, 427, 423, 433, 439...) or calculating (algorithm in fig. 5) one of a pixel or subpixel value for a pixel (e.g. fig. 4a, item 441) or subpixel in the output video image from pixel (one of 411₁, 411₂, or 411₃ from pixel block 411 using OR gate) or subpixel values in the input image lying between a corresponding support point and a neighbouring support point (e.g. support point 411₁ and neighboring support point 415₁ wherein individual pixel 411₂ or 411₃ is selected using OR gate); wherein the method further comprises:

distributing the support points of two successive lines or columns such that the support points of one line or column of the input image (fig. 4a, item 410) have an offset (e.g.,

(1) memory read "offset" in time in that proceeding support point pixel 411₁ is read from memory (an offset of time = 0) before succeeding support point pixel from 415₁ (a succeeding column) is read from memory (an offset of time = 4); or

(2) distance “offset” in distance in that proceeding support point pixel 411₁ is 0 pixels away from the corner of the image (an offset of 0 pixels) and succeeding support point pixel 415₁ (a succeeding column) is four pixels away from the corner of the image (an offset of 4 pixels)), with respect to a preceding or succeeding line or column of the input video image (fig. 4a, item 410), for improving reproduction of fine details in the output video image (*emphasis added*; intended usage); and

outputting the selected or calculated pixel (one of 411₁, 411₂, or 411₃ from pixel block 411 using OR gate) or subpixel value to produce the output video image (11:34-36) that can be displayed (*emphasis added*; intended usage).

Regarding **claim 17**, *Scott et al.* discloses further comprising calculating (algorithm in fig. 5) a pixel or subpixel value for a pixel or subpixel in the output video (11:34-36) image (fig. 4a, item 440) from pixel or subpixel values in the input image (fig. 4a, item 410) lying between a corresponding support point and both neighbouring support points (e.g. support point 415₁ with both neighboring support points 411₁ and 421₁ wherein individual pixels 411₃ and 415₂ are selected within their respective pixel blocks (411 and 415) with the OR gate).

Regarding **claim 18**, *Scott et al.* discloses a scaling circuit (fig. 12) for the arbitrarily selectable scaling of video (11:34-36) images (fig. 4a; fig. 5) represented by pixels (“...the source image is broken into pixel groups...” in 14:9-10 wherein the image is a plurality of pixels as shown in fig. 4a) or subpixels arranged line by line (“...horizontally...” in 14:8-11; fig. 4a) and column by column (“...vertically...” in 14:8-11; fig. 4a), having a microprocessor (fig. 2, item 220), a program memory (fig. 2, item 215) and a main memory (fig. 2, item 215), and also

input means ("microfilm scanner" in 7:60-62; fig. 2, item 270) for scaling circuit is adapted to execute a method as claimed in one of claims 15 to 17.

Regarding **claims 19 and 20**, *Scott et al.* discloses a film scanner with a drive for a control monitor (9:2-15).

Allowable Subject Matter

[8] **Claim 16** is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten (1) in independent form including all of the limitations of the base claim and any intervening claims; (2) and to overcome the rejection under 35 U.S.C. 101.

Conclusion

[9] Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

[10] Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID P. RASHID whose telephone number is (571)270-1578. The examiner can normally be reached Monday - Friday 7:30 - 17:00 ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikram Bali can be reached on (571) 272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David P. Rashid/
Examiner, Art Unit 2624

David P Rashid
Examiner
Art Unit 26244

/Vikram Bali/
Supervisory Patent Examiner, Art Unit 2624